

Spring 2009

## Upcoming workshops

Sept. 21-23, 2009

**Cold and Ultracold Plasma and Rydberg Physics II**, to be held in Cambridge MA, Organizers: Matthias Weidemüller, Georg Raithel, and Hossein Sadeghpour

Oct. 19-21, 2009

**Efimov States in Molecules and Nuclei: Theoretical Methods and New Experiments** to be held in Rome Italy. Jointly sponsored with Sapienza University of Rome and Accademia Nazionale dei Lincei. Scientific Committee: F. A. Gianturco, Rome, Italy, C. H. Greene, Boulder, CO; R. Grimm, Innsbruck, Austria, and P. Villareal, Madrid, Spain. Local Organizing Committee: I. Baccarelli, S. Bovino, F. A. Gianturco, and S. Orlandini,

For more information on workshops, topical groups, visitors and events see our website at [www.cfa.harvard.edu/itamp](http://www.cfa.harvard.edu/itamp)



## Staff News

ITAMP co-director Dr. Kate Kirby will be leaving Harvard-Smithsonian Center for Astrophysics in mid-July to become Executive Officer of the American Physical Society (APS).

ITAMP co-director Professor Mikhail Lukin became the 11th recipient of the I. I. Rabi Prize in Atomic, Molecular and Optical Physics. His citation reads, "For pioneering theoretical and experimental work at the interface between quantum optics, quantum information processing, and the quantum many body problem." Congratulations to Misha for this outstanding recognition.



## Postdoc Application Deadline Change

The deadline for ITAMP's postdoctoral fellowships is now the third week in November. This year (for the appointment in 2010) the deadline for all application materials will be November 16, 2009. We begin accepting applications in September.

One postdoctoral fellowship appointment is made each year to a promising scientist who has recently received a Ph.D. in any area of Theoretical Atomic, Molecular, and Optical (AMO) Physics. The Fellowship is for two years with possible renewal for a third year. Unlike most postdoctoral appointments, the possible research topics in AMO Physics that the postdoc chooses to pursue are not constrained by contract or grant requirements.

# Postdoc Updates



ITAMP postdoc for 2006, Dr. Paola Cappellaro, has accepted an offer to join the faculty of the Department of Nuclear Engineering at MIT. She

will also be associated with the MIT Research Laboratory of Electronics (RLE), of which CUA is a part. Her primary research focus is in Quantum Information Science.



Dr. Peter Rabl, who joined ITAMP in Sept. 2007 as a Postdoctoral Fellow, was awarded the Ludwig-Boltzmann-Prize of the Austrian Physical Society

(OePG). He received this prize in recognition of his Ph.D.-Thesis: "Towards Hybrid Quantum Processors: Interfacing Quantum Optical and Solid State Physics", which he submitted at the University of Innsbruck in October 2006.



**2008 Postdoc:** In the Fall of 2008 Dr. Barbara Capogrosso-Sansone joined ITAMP as a postdoctoral fellow. She received her Ph.D. from UMass Amherst where

she used quantum Monte Carlo methods to investigate ultracold bosons in optical lattices with advisor Prof. Nikolay Prokofiev.

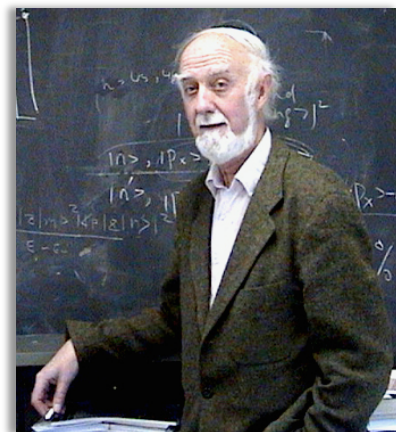
## 2008 Workshop Highlights:

ITAMP organized or co-organized a total of seven workshops and topical groups in 2008. The two topical groups were on Attosecond science and quantum computing, organized in May and October, respectively. ITAMP also co-organized two workshops, one with RIKEN/Univ. of Tokyo in Japan and one with Technion in Haifa, Israel, respectively.

- **Cold Antimatter Plasmas and Application to Fundamental Physics** was held February 20 – 22, in Okinawa, Japan. Jointly sponsored with RIKEN, University of Tokyo, and the Society for Atomic Collisions, the workshop was organized by Y. Yamazaki (Univ. Tokyo & RIKEN), Y. Kanai (RIKEN), H. Sadeghpour (ITAMP, Harvard-Smithsonian Center for Astrophysics).
- **Atomic and Molecular Physics of the Early Universe** was held March 31 – April 2, in Cambridge MA, USA. The workshop organizers were Bernard Zygelman, University of Nevada, Las Vegas, Phillip Stancil, University of Georgia, Alex Dalgarno, Kate Kirby, and Hossein Sadeghpour, from ITAMP. The talks from the workshop can be viewed online [www.cfa.harvard.edu/itamp/EarlyUSchedule.html](http://www.cfa.harvard.edu/itamp/EarlyUSchedule.html)
- The topical group **Theoretical Challenges in Attosecond Laser Science** was held May 12 – 26, at ITAMP. Agapi Emmanouilidou from the University of Oregon and Turgay Uzer from Georgia Tech. were the organizers. Notes from the group on Two-Photon double Ionization of the Helium Atom, contributed by P. Lambropoulos can be viewed online at: [www.cfa.harvard.edu/itamp/AttosecondTopical.html](http://www.cfa.harvard.edu/itamp/AttosecondTopical.html).

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- **Dalgarno Celebratory Symposium**, ITAMP fellows and friends celebrated Alex Dalgarno's 80th birthday in September, 2008, with a 3-day scientific meeting featuring Alex's long legacy of innovative research in the fields of AMO Physics, astrophysics, and atmospheric physics. More than 125 people attended, including many of Alex's former students and postdocs. Neal Lane was the featured banquet speaker. A volume of proceedings based on the meeting is being edited by Jim Babb, Kate Kirby and Hossein Sadeghpour. More information, including photos, can be found at <http://www.cfa.harvard.edu/itamp/DalgarnoSymposium.html>.



- The **Quantum Computing** topical group was held October 6 – 17. The group was organized by Franco Nori. Abstracts can be found on the ITAMP website.
- The workshop, **Resonances: From few-body to many-body** was held November 2 – 6 at Technion, Haifa, Israel. It was co-sponsored by Schulich Faculty of Chemistry and ITAMP and organized by Nimrod Moiseyev, Technion, and Hossein Sadeghpour, ITAMP.
- **Open Quantum Systems: Decoherence and Control** took place in November 20 – 22 at ITAMP. The workshop organizers were, T. Calarco, University of Ulm, P. Cappellaro, ITAMP, N. Khaneja, Harvard University, G. Morigi, Universitat Autònoma de Barcelona, and L. Viola, Dartmouth College. Abstracts can be downloaded and talks from the workshop will be online shortly.



### Workshops in 09

- "Non-equilibrium dynamics and correlations in strongly interacting atomic, optical and solid state systems" was held January 26 – 28 at ITAMP and organized by E. Demler, M. Lukin, G. Refael, and A.M. Rey. Talks are viewable online at: [www.cfa.harvard.edu/itamp/aosolidstatesystems.html](http://www.cfa.harvard.edu/itamp/aosolidstatesystems.html)
- Sept. 21 – 23, 2009, Cold and Ultracold Plasma and Rydberg Physics II, at ITAMP, Organizers: Matthias Weidemüller, Georg Raithel, and Hossein Sadeghpour
- Oct. 19 – 21, 2009, "Efimov States in Molecules and Nuclei: Theoretical Methods and New Experiments", Rome ITALY. Jointly sponsored with Sapienza University of Rome and Accademia Nazionale dei Lincei. Scientific Committee: F. A. Gianturco, C. H. Greene, R. Grimm, P. Villareal, Local Committee: I. Baccarelli, S. Bovino, F. A. Gianturco, and S. Orlandini.
- "Beyond BEC II", jointly organized by CUA and ITAMP.





## Postdoc Updates Cont.

### 2009 Postdocs:

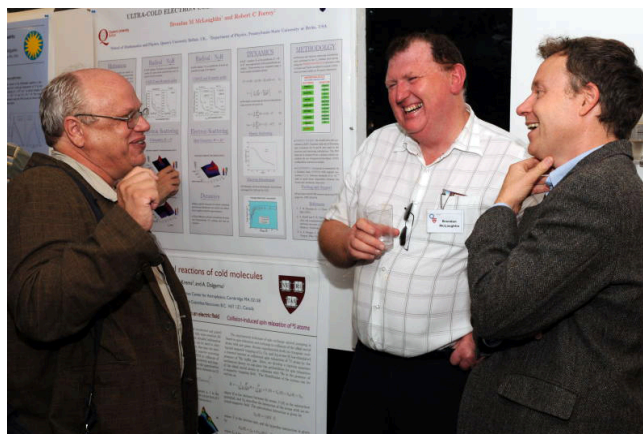
Dr. Seth Rittenhouse and Dr. Johannes Feist will join ITAMP in the Fall of 2009. Seth received his Ph.D. from the University of Colorado where he worked on using hyperspherical techniques to examine few and many body systems with strong interactions, with advisor Prof. Chris Greene. Johannes received his Ph.D. from the Vienna University of Technology, Austria, where he worked on electron correlation in atomic systems observed in dynamical processes induced by ultrashort light pulses, with advisor, Prof. Joachim Burgdörfer.

### Recent Moves...

In August 2008 Dr. Ana Maria Rey, accepted the position of Associate Fellow of JILA. Her research group focuses on ultracold atoms and molecules loaded in optical lattices. Ana Maria's website can be found at <http://jilawww.colorado.edu/~arey/index.html>

At the same time, in the summer of 2008, Dr. Thomas Pohl took a group-leader position at Max-Planck Institute for the Physics of Complex Systems. His research focus is on the complex dynamics of cold gases.  
[www.pks.mpg.de/mpi-doc/pohlgruppe/index.html](http://www.pks.mpg.de/mpi-doc/pohlgruppe/index.html)

Dr. Jake Taylor is now a Fellow at the Joint Quantum Institute at the University of Maryland and NIST and plans to continue his investigations into quantum aspects of devices, noise, and information. He received his Ph.D. at Harvard in the group of Misha Lukin and had worked as an undergraduate at ITAMP with Alex Dalgarno and Jim Babb. Prior to his new position, he was a Pappalardo Fellow at MIT.



### AMO THEORY INPUT WANTED

Have an idea for a workshop you want to organize? Have some sabbatical time? Would you like to bring a group of people together? ITAMP can help make it happen.

Contact us:

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